SECTION TWO - OPERATIONAL GOALS, STANDARDS AND GUIDELINES

INTRODUCTION

Section Two specifies operational goals, standards and guidelines that apply generally to the daily work of the Forests and Grassland. The definition of goals in this section is the same as in section one. The goals in this section provide direction for the activities not specifically mentioned in Section One. Section Two goals still serve the same function and are used to provide the context for developing standards and guidelines and outputs and activities as displayed in Supplemental Table 1 at the end of this volume.

The standards and guidelines in this section are management requirements that apply Forest- and Grassland-wide. Additional standards and guidelines are contained in Chapter Two for each geographic area and in chapter three for each management area. If forestwide standards and guidelines conflict with geographic area or management area standards and guidelines, those that are more site-specific or more stringent apply.

Standards are defined as courses of action or levels of attainment required to achieve goals and objectives. Standards are mandatory and deviation from them is not permissible without an amendment to the *Forest Plan.* Standards are developed (1) when laws or policies do not exist or benefit from further clarification, (2) when standards are critical to objectives, and (3) when unacceptable impacts are expected if a standard were not in place.

Guidelines are defined as preferred or advisable courses of action or levels of attainment designed to achieve the goals and objectives. When deviation from a guideline is necessary, it will be documented during the project-level analysis. Under those circumstances, the responsible official should recognize the purpose(s) for which the guideline was developed and assure interested individuals that any subsequently approved actions are not in conflict with the purposes for which the guideline was developed. Guidelines are developed in the following circumstances: (1) when they contribute to achievement of goals; (2) in response to variable site conditions; (3) in response to variable overall conditions; and (4) when professional expertise is needed.

CONFORMANCE WITH OTHER DIRECTION

Additional direction is contained in the *Forest Service Manual* and the *Forest Service Handbook.* A partial listing of some of the direction is contained in Appendix A and Appendix B to this *Forest Plan.* If new changes are made in the Forest Service directives system that conflict with the standards and guidelines of this *Forest Plan*, the *Forest Plan* will be amended.

The ARNF-PNG will continue to manage for multiple uses, meet all legal requirements to protect the environment and insure healthy ecosystems consistent with Congressional and public intent. Soil, air, and water resources will be protected. Threatened and endangered species and their habitat will be evaluated and managed according to the Endangered Species Act. Habitat will be maintained or improved for designated management indicator species. Water and soil resources will be managed to meet the requirements of the Clean Air and Clean Water Acts. These basic management tenets are written in law and in Forest Service policy, and are part of the everyday work of Forests and Grassland employees.

OPERATIONAL GOALS, STANDARDS AND GUIDELINES

Goals **(GO)**, standards **(ST)** and guidelines **(GL)** are grouped according to the outline below. Direction for managing the ecosystem in an integrated fashion often cannot be categorized to fit under one heading. Direction pertaining to one subject may also be covered under other headings. Within each section and heading, appropriate goals, standards and guidelines are presented in order. Objectives for the *Forest Plan* are displayed in Supplemental Table 1.

PART 1: PHYSICAL RESOURCES

Air
Water Resources
Mineral and Energy Resources

PART 2: BIOLOGICAL RESOURCES

Biodiversity
Silviculture-Timber
Grazing Management
Wildlife

PART 3: DISTURBANCE PROCESSES

Fire
Insects and Disease
Undesirable Species

PART 4: MANAGING FOR RECREATIONAL USERS

Dispersed Recreation
Developed Recreation
Scenery Management

PART 5: ADMINISTRATION

Real Estate
Special Uses
Infrastructure

PART 1: PHYSICAL RESOURCES

Air

1. **(GO)** Protect the Forests and Grassland ecosystems from unacceptable on-forest air pollution-caused impacts.

2. **(ST)** Conduct all land-management activities in such a manner as to comply with all applicable federal, state, and local air-quality standards and regulations.

Water Resources[1]

3. **(GO)** Work cooperatively with national, state and local interests to protect,water related values in perpetuity on National Forest System lands.

Hydrologic function

4. **(ST)** Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff.

5. **(ST)** Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff.

Riparian areas and wetlands

6. **(GO)** Activities that have the ability to affect the continuity of structure, composition, and function within riparian ecosystems shall be managed to sustain riparian areas.

7. **(ST)** In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those land treatments that maintain or improve long-term stream health.

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[1]Directions 3-24 come from the *Watershed Conservation Practices Handbook R2 Amendment 2509.25-96-1.* Forest Plans work in concert with the *Forest Service Manual* and handbooks such as this one. To understand how these standards and guidelines will be implemented for projects, consult the handbook. It is available on request from the Supervisor's Office, 240 West Prospect Road, Fort Collins, CO 80526.

8. **(ST)** In watersheds containing aquatic TES species, allow activities and uses within 300 feet or the top of the inner gorge (whichever is greatest), of perennial and intermittent streams, wetlands, and lakes (over 1 acre) only if onsite analysis shows that long-term hydrologic function, channel stability, and stream health will be maintained or improved .

9. **(ST)** Design and construct all stream crossings and other instream structures to pass normal flows, withstand expected flood flows, and allow free movement of resident aquatic life.

10. **(ST)** Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health.

11. **(ST)** Do not degrade ground cover, soil structure, water budgets, and drainage patterns in wetlands.

12. **(ST)** Maintain enough water in perennial stream reaches to sustain existing stream health. Return some water to dewatered perennial streams where needed and feasible.

13. **(ST)** Manage water-use facilities to prevent gully erosion of slopes and to prevent sediment and bank damage to streams.

Erosion and sediment

14. **(GO)** Manage the soil resource, Forest Service activities and those activities permitted by the Forest Service, such that the physical, chemical and biological processes and functions of the soil in an ecosystem are maintained or enhanced.

15. **(ST)** Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of specific operations, local topography, and climate.

16. **(ST)** Construct roads and other disturbed sites to minimize sediment discharge into streams lakes, and wetlands.

17. **(ST)** Stabilize and maintain roads, trails, and disturbed sites during and after construction to control erosion.

18. **(ST)** Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage.

Soil productivity

19. **(ST)** Manage land treatments to limit the sum of severely burned and detrimentally compacted, puddled, and displaced land to no more than 15 percent of any land unit (*FSH*

2509.18). If a soil is compressed more than 15 percent or if the soil pore space is decreased more than 15 percent as compared to a soil of similar texture then the soil is detrimentally compacted.

Watershed conservation practices—water purity

20. **(ST)** Maintain or improve long-term levels of organic matter and nutrients on all lands.

21. **(ST)** Place new sources of chemical and pathogenic pollutants where such pollutants will not reach surface or ground water.

22. **(ST)** Apply runoff controls to disconnect new pollutant sources from surface and ground water.

23. **(ST)** Apply chemicals using methods which minimize risk of entry to surface and ground water.

24. **(GL)** Where there is the potential for toxic contamination of soil from ground disturbing activities (e.g. oil or gas drilling, mineral exploration), a contingency plan to prevent or rehabilitate soil contamination should be developed.

Mineral and Energy Resources[1]

25. **(GO)** Encourage and facilitate orderly exploration, development, and production of minerals and reclamation of disturbed areas in an environmentally sound manner.

26. **(ST)** Reclamation will be considered satisfactory when the disturbed area has been reclaimed in accordance with operating plan requirements, desired vegetation species have been seeded, and seeded vegetation has attained 80 percent potential cover on the disturbed areas as compared to adjacent undisturbed areas.

27. **(GL)** Avoid development of capital investments in areas that may be jeopardized by moderate to high mineral potential on nonfederal mineral estate ownership.

Leasables

28. **(ST)** For areas which will be recommended to Congress for inclusion in the Wilderness System during this revision of the *Forest Plan*, leasing of minerals will be delayed until authorized by Congressional action.

[1] Management direction for locatable and stable minerals is dicussed in pertinent laws and regulations.

Reserved and outstanding rights

29. **(ST)** Surface management for private oil and gas minerals will be negotiated with the owner and operator to be as close as possible to the standards used for federal minerals; prohibiting such development is not an alternative.

Paleontological resources

30. **(ST)** Sensitive paleontological information will not be subject to *Freedom of Information Act* disclosure.

31. **(ST)** Protect from disturbance or mitigate disturbances of known paleontological resources to conserve scientific, educational, interpretive, and legacy values.

32. **(ST)** Mitigate areas of potential paleontological resources in Classes 3, 4, and 5 of the Fossil Yield Potential Classification to identify presence or absence of management-relevant paleontological resources. If resources are identified, mitigate to Standard 1.

33. **(ST)** Survey and post land boundaries where paleontological sites have sensitivity rankings of 3, 4, or 5.

PART 2: BIOLOGICAL RESOURCES

Biodiversity

34. **(GO)** Maintain, and restore where necessary, the compositional, structural and functional elements which will perpetuate diversity.

Composition

35. **(GO)** Manage vegetation composition and structure on rangelands and grasslands for a mosaic of conditions that should provide nesting and brood-rearing habitat for species that prefer tall, dense cover, as well as habitat for those that prefer short sparse cover.

36. **(GL)** Achieve or maintain satisfactory rangeland conditions on all rangelands. Satisfactory rangeland conditions occur when the existing plant communities (including species composition, structure, pattern and soil characteristics) are at or progressing towards the desired plant community.

37. **(GL)** Maintain aspen, even at the expense of spruce-fir or other late-successional stands.

Landscape linkages

38. **(GO)** Establish or maintain landscape linkages, where needed and feasible, which provide connections among large, contiguous blocks of late-successional forest.

39. **(GO)** Maintain, and restore where necessary, habitats of sufficient area and appropriate spatial pattern, to minimize the adverse effects of human-caused fragmentation.

40. **(GL)** Protect landscape linkage areas (patterned matrix, corridors, stepping stones, etc.) which facilitate multidirectional movement of species between important habitats such as late-successional forests, high-elevation tundra, meadows and forests, lower-elevation forests, shrublands and prairies.

Special habitats

41. **(GL)** Protect communities of special concern such as: talus slopes, caves, springs, seeps, wetlands, aquatic habitats, riparian habitats, shortgrass prairies, late-successional forests and alpine tundra (including the ecotone and sufficient buffer areas).

Scale

42. **(GO)** Allow ecological processes where feasible at all temporal and spatial scales to proceed in a manner that contributes to sustainable wildland ecosystems.

Structure

43. **(GL)** When managing vegetation, maintain edge contrasts and edge-to-interior ratios which mimic edge conditions that would result from natural disturbance regimes (fire, insect and disease infestations).

Endangered, threatened and sensitive species

44. (GO) Restore, protect and enhance habitats for endangered, threatened and proposed flora and fauna species listed in accordance with the Endangered Species Act and sensitive species appearing on the regional sensitive species list to contribute to their stabilization and full recovery.

45. **(GO)** Habitats for federally-listed threatened, endangered, and proposed species and regionally-listed sensitive species are protected, restored, and enhanced. Habitat on National Forest System lands is managed to help assure that those species, whose viability is a concern, survive throughout their range, that populations increase or stabilize, or that threats to populations are eliminated.

46. **(GO)** Prepare biological evaluations for each project authorized, funded, or conducted on National Forest System lands to determine possible effects of the proposed activity on endangered, threatened, or sensitive species.

47. **(GO)** Prepare species management guides to address the effects of land management activities on local populations of sensitive species at a broader scale, and to identify opportunities to enhance and develop habitat.

48. **(GO)** Develop conservation strategies as scientific information becomes available to specify the management considerations needed to maintain viable populations of sensitive species. When the Forest Service and the Fish and Wildlife Service of the U.S. Department of Interior have approved conservation agreements for sensitive species, provisions will be incorporated into the *Forest Plan* by amendment or revision, as appropriate, to protect the habitat for the species.

49. **(ST)** Where newly discovered threatened, endangered, proposed, or sensitive species habitat is identified, conduct an analysis to determine if any adjustments in the *Forest Plan* are needed.

50. **(ST)** Manage activities to avoid disturbance to sensitive species which would result in a trend toward federal listing or loss of population viability. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components and other pertinent factors. Special attention will be given during breeding, young rearing, and other times which are critical to survival of both flora and fauna.

51. **(ST)** Close areas to activities to avoid disturbing threatened, endangered, and proposed species during breeding, young rearing, or at other times critical to survival. Exceptions may occur when individuals are adapted to human activity, or the activities are not considered a threat.

Conservation of genotypes

52. **(GO)** Conserve a wide variety of native and desirable non-native genotypes across the full range of Forests and Grassland habitats.

53. **(GO)** When competing uses arise, favor habitat specialists that are characteristic of restricted niches present in rare or declining habitats, over species which are habitat generalists, characteristic of common or expanding habitats.

54. **(ST)** Use genetically local (at the sub-section level), native plant species for revegetation efforts where technically and economically feasible. Seed mixtures should be weed free. To prevent soil erosion, use non-native annuals or sterile perrenial species while native perennials are becoming established.

Silviculture/Timber

55. **(GO)** Make fuelwood, Christmas tree, and other miscellaneous products available where consistent with management area direction and desired future conditions.

56. **(ST)** Develop prescriptions prior to timber harvest to identify the amount, size(s) and distribution of down logs and snags to be left on-site, as well as live, green replacement trees for future snags. On Forest sites, snags and coarse woody debris should be retained (where materials are available) in accordance with the average minimums specified in Table 1.8.

Table 1.8 Forest *Minimum* Requirements for Snag and Woody Debris Retention and Continuing Recruitment on Forested Sites Following Timber Harvest.[a]

Snags				Woody Debris
Forest Type	**Minimum Diameter (inches)**	**Retention Density (number per acre)**	**Minimum Snag Height (feet)**	**Retention Density (linear feet per acre)**
Spruce-fir	10	1	25	50
Lodgepole Pine	8	1	25	33
Aspen	8	1	25	33
Mixed Conifer	10	2	25	50
Douglas-fir	10	1	25	50
Ponderosa Pine	10	1	25	50

[a] These amounts are to be calculated as *per-acre* averages over *project areas*. The appropriate distribution of down wood and snags will be prescribed during project development.

57. **(ST)** Limited timber cutting on unsuitable or tentatively suitable and not available lands, may occur for such purposes as salvage, protection or enhancement of biodiversity or wildlife habitat, or to perform research or administrative studies or scenic-resource management consistent with management area direction. Regulated timber-harvest activities will occur on only those lands classified as suitable and available for timber production as shown on the *timber suitability map* enclosed with this document.

58. **(ST)** When trees are harvested on suitable and available lands, the cutting must be in such a way that there is assurance that the technology and knowledge exists to adequately restock these areas within five years after final harvest. Minimum restocking levels are defined in Tables 1.9. and 1.10.

Table 1.9. Standard For The Required Minimum Numbers of Seedlings for Adequate Restocking of a Cutover Site

	Growing Stock				All Live Trees			
Species	Spruce-fir	Aspen	Douglas-Fir	Lodgepole Pine	Ponderosa Pine	Pinion Juniper	Other Softwood	Other Hardwood
Trees per Acre	150	300	150	150	150	120	150	300

Table 1.10 Standard For The Required Minimum Numbers of Seedlings for Adequate Restocking of a Regeneration Site

	Growing Stock: All Live Trees							
Species	Spruce-fir	Aspen	Douglas-Fir	Lodgepole Pine	Ponderosa-Juniper	Pinion-Softwood Pine	Other Hardwood	Other
Trees per Acre	150	300	150	150	150	120	150	300

59. **(ST)** The requirement for adequate restocking within five years is initiated by the final harvest. Five years after final harvest means five years after clearcutting, five years after the final overstory removal in the shelterwood and seedtree methods, or five years after selection cutting. The timing of first and third year restocking surveys is initiated by the reforestation treatment.

60. **(ST)** No minimum seedling height requirements are specified. Seedlings must have survived a minimum of one year and be expected (on the basis of research and experience) to be able to produce the desired future condition. The number of seedlings in Table 1.9 represents the minimum number of seedlings required, considering natural mortality, to produce a merchantable timber stand at rotation age without intermediate treatments.

Table 1.11 Appropriate Silviculture Systems by Forest Type Cover

Management Activity	Engelmann Spruce/Sub alpine Fir	Ponderosa Pine	Lodgepole Pine	Interior Douglas-Fir and White Fir	Aspen	Mixed Conifer
Silvicultural System						
Even-Aged						
Clearcut	WJ	WJ	A	WJ	A	WJ
Shelterwood	A	A	A	A	N	WJ
Seedtree	N	WJ	WJ	WJ	N	WJ
Coppice	N	N	N	N	A	N
Two-Aged						
Irregular Shelterwood	A	A	A	A	N	WJ
Coppice with Standards	N	N	N	N	A	N
Uneven-Aged						
Group Selection	A	A	A	A	A	WJ
Single-tree Selection	A	A	N	A	N	WJ
Stocking Control: (thinning)						
Precommercial	A	A	A	A	N	A
Commercial	A	A	A	A	N	A
Salvage of Dead Material	A	A	A	A	A	WJ
Site Preparation	A	A	A	A	WJ	WJ
Reforestation						
Planting	A	A	A	A	N	WJ
Seeding	N	A	WJ	N	N	N
Natural	A	A	A	A	A	A
Regeneration Protection	A	A	A	A	WJ	WJ
Tree Improvement	A	A	A	WJ	WJ	WJ

A = Acceptable WJ = When Justified N = Not Acceptable

61. **(ST)** The scientifically defined silvicultural systems shown, by forest cover-type, in Table 1.11 which meet the management objectives for the landscape or individual stands of trees within a landscape setting are acceptable. Both even-aged and uneven-aged management systems can be used and applied at scales ranging from a few acres to many hundreds of acres. These silvicultural systems are to be applied in a manner that will ensure natural regeneration where artificial regeneration is not necessary for other resource objectives. Tree stand vegetation management treatments are to be approved by certified silviculturists. The silvicultural systems identified in Table 1.11 can be used to convert uneven-aged stands to even-aged management and even-aged stands to uneven-aged management. (See Appendix E of the *FEIS* for further explanation of silvicultural systems and applications.)

62. **(ST)** When trees are to be harvested on other than suitable lands, exceptions to the five-year restocking standard are appropriate as documented in project decisions when the harvest meets one of the following criteria:

    a. For permanent openings that serve specific management direction

    b. Where provided for in specific management practices and prescriptions

    c. Where it is desirable to delay the onset of regeneration of crown closure to meet specific desired conditions and management objectives

63. **(ST)** Forty acres is the maximum allowable opening acreage for forest types. Exceptions to this maximum are provided at 36 CFR 219.27(d)(2) (I) through (iii). The regulations at 36 CFR 219.27(d)(2)(ii) allow for size limits exceeding those established at 36 CFR 219.27(d)(2) and 36 CFR 219.27(d)(2)(I). Exceptions are permitted for individual timber sales after 60 days public notice and review by the Regional Forester. The regulations at 36 CFR 219.27(d)(2)(iii) provide that the established limit shall not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm.

64. **(ST)** Utilization standards for live and dead trees are shown in Table 1.12.

65. **(ST)** Retain large woody debris on harvested or thinned sites to help retain moisture, trap soil movement, provide microsites for establishment of forbs, grasses, shrubs, and trees, and to provide habitat for wildlife.

66. **(ST)** The size of the uncut forest areas between openings must be based on the managment objectives for the landscape unit being analyzed. If these objectives include creating a mix of vegetation types to benefit the kinds of wildlife associated with early successional stages and edges, the size of uncut units can be small. For the late succession-associated species, the uncut units should be large enough to function as an ecological system not overly influenced by the edge.

Table 1.12 Timber Utilization Standards

Type of Product	Minimum Diameter at Breast Height (Inches)	Top Diameter (Inches)	Minimum Length (Feet)	Percent Net of Gross
Live Trees				
Coniferous Sawtimber	7	6	8	33 1/3
Aspen Sawtimber	8	6	8	50
Products Other Than Sawtimber	5	4	6.5	50
Dead Trees				
Sawtimber	8	7	16	33.3
Products Other Than Sawtimber	5	4	6.5	50

67. **(ST)** Where disease can be spread from an uncut stand to a newly regenerated stand, it is desirable to cut the adjacent infected stand before the regenerated stand reaches a height of six feet.

68. **(GL)** Provide dead trees and live replacements to support primary cavity excavators (woodpeckers) at or above 50 percent of their biological potential.

69. **(GL)** Do not undertake regeneration harvests of even-aged timber stands (sites) until the stands have generally reached or surpassed 95 percent of the culmination of the mean annual increment measured in cubic feet. Exceptions may be made where resource-management objectives or special resource considerations require earlier harvest, such as:

    a. stands which are in imminent danger from insect or disease attacks

    b. wildlife habitat improvement

    c. visual resource enhancement or rehabilitation

    d. ecosystem restoration

    e. areas managed for Christmas tree production

70. **(GL)** Do not apply minimum or maximum size limits for stand acreages where an uneven-aged structure can be maintained throughout.

71. **(GL)** Artificially created openings will no longer be considered openings when the trees in the opening have reached a height and density that meets the objectives and criteria established for the management area. Criteria to consider in determining when an opening is no longer an opening include:

    a. desired conditions planned for the management area

    b. visual sensitivity of the area and character of the landscape

    c. abundance, quality and need for cover for big game animals

    d. other vegetation that may be present (such as tall shrubs)

    e. forest health

    f. need for seed sources

    g. need for interior forest area

    h. production of wood fiber

    i. watershed and riparian area protection

Table 1.13 Sample Guidelines for When an Opening Is No Longer Considered an Opening

Forest Cover Type	Trees/Acre	Height of Trees
Ponderosa Pine and Mixed Conifers		
Big Game Cover	200	6 feet
Retention, Partial Retention Scenic Condition Objective	200	25% of the height of adjacent stand
Lodgepole Pine and Spruce-Fir		
Big Game Cover	300	6 feet
Retention, Partial Retention Scenic Condition Objective	150	25% of height of adjacent stand

72. **(GL)** Take the landscape as the primary unit of analysis for silviculture. A landscape is defined here to mean a distinct landform such as a mesa, or an sixth-level watershed. There is a great variety of landscape types within the Rocky Mountain Region. Some landscapes may contain more than a single tree species. Some landscapes are "fine-grained" (characterized by many small areas in various stages of plant succession). Others are "large-grained" (characteristically forested with large, unbroken expanses of trees and few openings). There are areas in the Region which have become a patchwork of forest and open places as a result of human use prior to establishment of the National Forests, past Forest Service management practices, and natural disturbances (wind, fire, insect activity, and earth movement).

73. **(GL)** Apply silvicultural standards and guidelines at the watershed and landscape level, as well as to individual stands of trees to perpetuate a range of environmental conditions while supplying goods and services to people.

74. **(GL)** In most circumstances, rely on or make primary use of those silvicultural systems which ensure regeneration of forest stands through natural seeding and suckering.

75. **(GL)** Use artificial regeneration methods when it is unreliable to count on the natural sequence of events and/or environmental conditions to regenerate the forests within five years.

76. **(GL)** Except for treatments designed to enhance meadows, avoid altering more than one-third of the edge of a natural opening whenever an artificially created opening lies adjacent to a natural opening. Additional edge should not be created until previously treated areas are considered closed (meets regeneration standards), according to the standard listed in Table 1.10.

77. **(GL)** Use thinning practices which consider genetic diversity and competition among the trees for water, nutrients and light. The frequency of thinning should depend upon the tree species, financial efficiency, and the site's growing conditions (as commonly measured by the site index).

78. **(GL)** Where appropriate, reduce competition between desired trees and other vegetation.

79. **(GL)** If the silviculture system being applied to a particular area of the landscape is uneven-aged, harvest trees designated for commercial production based on the desired density as determined by age class or size, and the objectives for the area.

Grazing Management

80. **(GO)** Provide forage for both wildlife and domestic livestock in a manner consistent with other resource objectives and environmental constraints.

81. **(GO)** Achieve vegetation trends toward satisfactory range condition within five years after rangeland project decisions are made and necessary changes to grazing systems and allowable use standards have been fully implemented.

82. **(ST)** Coordinate livestock grazing on rangelands to provide adequate cover for deer in wooded draws and riparian areas.

83. **(ST)** In areas where tall dense cover is desired for ground-nesting birds, carry over adequate residual cover from previous growing seasons, since some species begin nesting in April and May before spring growth.

84. **(ST)** Manage livestock grazing to avoid adverse impacts to nesting habitat in areas where bird species prefer to nest in undisturbed cover and where these species are a primary consideration.

85. **(ST)** Manage allotments according to the strategy shown on the *range suitability map.*

86. **(ST)** For animal damage control activities conducted by other governmental entities, the Forest Service will cooperate by providing mitigation measures to protect National Forests and Grassland resources. Mitigation measures emphasize protection of public safety; threatened, endangered, or sensitive species; water quality; or other resource values.

87. **(ST)** Phase out season-long grazing in an allotment, except where it is determined to achieve or maintain the desired plant community.

88. **(GL)** The site-specific rangeland analysis necessary for preparation of allotment management plans shall document these elements of riparian communities:

    a. desired plant communities

    b. site-specific mitigation measures

89. **(GL)** When trends toward satisfactory range condition are not achieved within five years by changes in grazing system and allowable use standards, evaluate causes and make appropriate changes in grazing systems, stocking rates or allowable use standards.

90. **(GL)** Develop site-specific vegetation utilization and residue guidelines during rangeland planning, and document them in allotment management plans. In the absence of updated planning or an approved allotment management plan, the utilization and residue guidelines shown in Tables 1.14 and 1.15 will apply.

Table 1.14 Allowable Use Guidelines for Rangeland Planning

	IF EXISTING RANGELAND CONDITION IS:	
TYPE OF MANAGEMENT	**SATISFACTORY**	**UNSATISFACTORY**
Season-long	45%	30%
Fall and Winter	55%	40%
Deferred Rotation	50%	35%
Rest Rotation	55%	40%

Table 1.15 Riparian Vegetation Residue Allowances

	IF EXISTING RANGELAND CONDITION IS:	
SEASON OF USE	**SATISFACTORY**	**UNSATISFACTORY**
Spring/Summer Use Pasture [a] Tall Carex Species Kentucky Bluegrass	 4 inches 1-2 inches	 6 inches 2-3 inches
Fall/Winter Use Pasture [b] Tall Carex Species Kentucky Bluegrass	 4 inches 1-2 inches	 6 inches 2-3 inches

[a] Spring/summer use: stubble height is present on all streamside areas at the end of the growing season.
[b] Fall/winter use: stubble height is present on all streamside areas at the end of the grazing season.

91. **(GL)** Apply the following mitigation measures to both occupied and unoccupied riparian habitat. *The Biological Evaluation for Sensitive Species in Riparian Grazed by Domestic Livestock* (USDA FS, Rocky Mountain Region, 1995) is the reference for the development and application of these measures.

    a. Avoid season-long grazing in riparian pastures.

    b. Implement short-duration spring grazing where possible to provide greater opportunity for regrowth and to avoid utilization of willows.

    c. Implement total rest where possible in riparian pastures with deteriorated range where conditions are not likely to improve with livestock grazing.

    d. Remove livestock from a grazing unit when the average stubble height on Carex (sedge) species reaches 3 to 4 inches in spring use pastures and 4 to 6 inches in summer and fall pastures.

    e. Remove livestock from a grazing unit when streambank disturbance (trampling, exposed soils, etc.) from the current year's livestock grazing reaches 20 to 25 percent of the key area stream reach.

    f. Limit utilization of woody plants to 15 to 20 percent of current annual growth.

    g. Control the length of the grazing period in spring-use riparian pastures to minimize utilization of regrowth. This is normally 20 to 30 days.

    h. Limit utilization of herbaceous species to 40 to 45 percent of weight.

Wildlife

92. (GL) Selected management indicator communities for animals and plants will include: existing and developing old-growth forests; interior forests; young to mature forest structural stages; openings within and adjacent to forests; aspen forests; montane and prairie riparian areas and wetlands; montane and prairie aquatic environments; short-grass prairie; mid-grass prairie; and prairie dog towns. In addition, caves and mines on the Forests and prairie woodlands on the Grassland are identified as specialized habitat types.

93. (GL) Management Indicator Species. Providing for viability of native and desired non-native vertebrate animal populations is a management tenet that transcends management area and functional activity boundaries. To aid this goal, management indicator species have been identified to represent communities on the Forests and Grassland. Monitoring of these species will be done throughout the life of the *Plan.* For monitoring requirements see the *Forest Plan* Chapter 4 and Appendix G.

Arapaho and Roosevelt National Forests Management Indicator Communities and Indicator Species. (See *Forest Plan* Appendix G, Section One for detailed information on these species.):

Existing and Potential Old Growth Forest:
- Northern three-toed woodpecker
- Flammulated owl
- Pygmy nuthatch

Interior Forest:
- Black bear
- Golden-crowned kinglet

Young to Mature Forest Structural Stages:
- Elk
- Mule deer
- Hairy woodpecker

Openings Within/Adjacent to Forest:
- Elk
- Mule deer
- Bighorn sheep
- Mountain bluebird

Aspen Forest:
- Warbling vireo

Montane Riparian Areas and Wetlands:
- Wilson's warbler
- Northern leopard frog
- Boreal toad

Montane Aquatic Environments:
- Greenback cutthroat trout

Colorado River cutthroat trout
Brook Trout
Brown Trout
Rainbow Trout

Arapaho and Roosevelt National Forests Special Habitat Community and Indicator Species:
Caves/Mines:
Townsend's big-eared bat

Pawnee National Grassland Management Indicator Communities and Species:
Shortgrass Prairie:
Ferruginous hawk
Mountain plover
Midgrass Prairie:
Ferruginous hawk
Lark bunting
Prairie Dog Towns:
Prairie dog
Western burrowing owl
Prairie Riparian Areas and Wetlands:
Northern leopard frog
Prairie Aquatic Environments:
Plains topminnow
Plains killifish

Pawnee National Grassland Special Habitat Community and Indicator Species:
Prairie Woodlands:
Mule deer
Brown thrasher

Federal and State Endangered or Threatened Species Known to Occur on National Forest System Lands that may be Affected by Land and Resource Management (species not already selected for management indicator communities):
American peregrine falcon
bald eagle
wolverine
river otter
lynx
wood frog

Terrestrial

94. **(GO)** Maintain or improve habitat capability for terrestrial wildlife.

95. **(GO)** Retain the integrity of effective habitat areas.

96. **(ST)** Restrict seasonal use of travelways (under Forest Service jurisdiction) to reduce disturbance in sensitive big game areas such as birthing areas and winter ranges. This does not imply that all birthing areas and winter ranges are considered equally important, and not all will be considered "susceptible."

97. **(ST)** Structures, such as fences, roads, and canals, will be designed and built so that they do not create unreasonable or unnecessary movement barriers or hazards for wildlife.

98. **(ST)** Do not compromise wildlife habitat values when developing watchable wildlife opportunities for the public.

99. **(ST)** In riparian areas, cover that provides wildlife travel corridors will be maintained along the entire length of riparian zones on at least one side of the drainage. New corridor interruptions affecting both sides of the drainage will be of minimum width needed and no more than 60 feet.

100. **(ST)** Manage human disturbance at caves and abandoned mines where bat populations exist. When closing mines or caves for safety or protection reasons, reduce disturbance to residing bat populations and provide bat access.

101. **(ST)** Protect known raptor nest areas. Base the extent of protection on proposed management activities, human activities existing before nest establishment, species, topography, vegetative cover, and other factors. A no-disturbance buffer around active nest sites will be required from nest-site selection to fledgling (generally March through July). Exceptions may occur when individuals are adapted to human activity.

102. **(ST)** Restrict new developments, including new facilities, roads and trails, and concentrations of humans, within a one-mile sight distance of bighorn sheep lambing and mountain goat kidding areas if they would adversely impact lambing or kidding. Restrictions on activities are usually required from May 1 to July 15.

103. **(GL)** Maintain the function of key or unique habitats such as primary feeding areas, winter ranges, riparian habitat, breeding areas, birthing areas, rearing areas, migration corridors, animal concentration areas, wooded draws, and riparian areas. Human disturbance should be minimized during periods critical for wildlife.

104. **(GL)** In riparian areas where cover that would provide wildlife travel corridors does not presently exist due to past human activities, such areas should be managed to provide corridors in the future along the entire length of riparian zones, on at least one side of the drainage. Corridor interruptions affecting both sides of the drainage should be of minimum width needed and no more than 60 feet in length. Interruptions affecting one side of a drainage should be no greater than 300 feet (parallel to the drainage).

105. **(GL)** Manage for a minimum of 12 prairie dog towns on 200 acres for minimum viable populations, and a maximum of 30 towns on 1,000 acres for compatibility with other resources and neighboring landowners on the Pawnee National Grassland. Towns should occur in clusters of three or more where each is three miles or less from another town to allow interbreeding of different populations and to perpetuate genetic viability.

106. **(GL)** Exclude human activity in key elk-calving areas during a minimum period of May 15 to June 15 and in key winter range of elk and deer for a minimum period of December 1 through March 30 with the exception of through routes.

107. **(GL)** Avoid disconnecting or severing intact areas of effective habitat with new open roads and trails. Favor seasonal use during noncritical times for wildlife when this cannot be avoided.

108. **(GL)** When developing new open roads and trails, do not reduce contiguous areas of effective habitat to less than 250 acres or further reduce effective habitat of 20 to 250 acres in size, except where access is required by law. See the *habitat effectiveness map* enclosed with this document.

109. **(GL)** Additional open roads and trails should not reduce effective habitat below 50 percent by geographic area, or further reduce effective habitat in geographic areas that are already at or below 50 percent on NFS lands. See geographic area direction in Chapter Three.

Aquatic

110. **(GO)** Maintain water quantity and quality to provide for the maintenance of riparian areas, aquatic habitat, and fish populations.

111. **(GO)** For any activity likely to affect existing aquatic habitats, favor improvement or maintenance of natural aquatic habitats over replacement or substitution, unless benefits of replacement or substitutions are higher.

112. **(GL)** Provide natural and beneficial quantities of large woody debris to support high quality aquatic habitats over the short and long term.

113. **(GL)** Rehabilitate aquatic habitats where past management activities have adversely affected their ability to support fish populations.

114. **(GL)** Maintain sediment in streams below levels which reduce reproductive success when compared to natural conditions or cause decline in biomass or community diversity of macroinvertebrates.

115. **(GL)** To prevent conditions toxic to fish, human-caused disturbances should not result in suspended sediment peaks above 250 mg/l in any stream reach for over one hour duration in any stream reach, nor more than 500 mg/l at any point in time.

Late successional forests

116. **(GO)** Maintain or develop a network of existing and future old growth that provides adequate habitat which is well dispersed, effective and accessible to associated wildlife species.

117. **(GO)** Provide for the most rapid development of future Douglas-fir and ponderosa pine old growth conditions within identified areas.

118. **(GL)** Retain all existing Douglas-fir and ponderosa pine old growth and increase amounts in the future.

119. **(GL)** Retain some connectivity of existing forested corridors within identified map areas, and between old-growth sites that are not planned for harvest, or manage for future forested corridors where connectivity is potential but absent.

120. **(GL)** Maintain or increase habitat effectiveness within identified old growth areas and all old growth sites that are not planned for harvest.

121. **(GL)** Within existing ponderosa pine and Douglas-fir old-growth stands that are known or discovered, either exclude vegetation treatments or reduce fire hazards using prescribed fire or mechanical means if sites are at risk from fire (e.g. removal of encroaching Douglas-fir regeneration in ponderosa pine old growth sites).

122. **(GL)** Allow through vegetation protection, or encourage through vegetation treatments the development of future Douglas-fir and ponderosa pine old growth conditions within identified old-growth areas.

PART 3: DISTURBANCE PROCESSES

Fire

123. **(GL)** When feasible and appropriate, use broadcast burning to dispose of slash, return the inorganic and organic chemicals in the foliage and small woody material to the soil, to reduce fire hazard, and to provide seed beds for natural regeneration.

Insects and Disease

124. **(GL)** Plan management activities with consideration for potential insect or disease outbreaks. Design management to meet or enhance management area objectives.

125. **(GL)** Use integrated pest management techniques, including silvicultural treatments, to meet management area objectives. Base treatment activities on values of, and risks to, wildlife habitat, adjacent private lands as well as public land. Give priority to areas in which values to be protected exceed the cost of protection (for example, adjacent to subdivisions, metropolitan areas, recreation sites, or areas of concentrated public use).

126. **(GL)** Project plans should consider existing infestations of insects or disease within a project area. Design activities to minimize the risks of spreading the infestation while still providing habitat for those wildlife species dependent on the presence of insects and disease.

127. **(GL)** Control natural insect and disease outbreaks in Wilderness only when justified by predicted loss of resource values outside of Wilderness.

Undesirable Species

128. **(GO)** Manage undesirable vegetation, including noxious weeds, using an integrated pest management approach.

129. **(ST)** Control undesirable nonnative and noxious plants throughout the Forests, with priority given to new species (new to Colorado or the ARNF-PNG), and to wilderness areas.

130. **(ST)** Use only certified "noxious weed-free" hay or straw for feed or revegetation projects anywhere on the ARNF-PNG.

131. **(ST)** For all proposed projects or activities, determine the risk of noxious weed introduction or spread, and implement appropriate mitigation measures.

132. **(GL)** Develop a noxious-weed and pest-management program that addresses awareness, prevention, inventory, planning, treatment, monitoring, reporting and management objectives.

    Priorities for controlling noxious weeds are:

    a. new invaders

    b. new areas